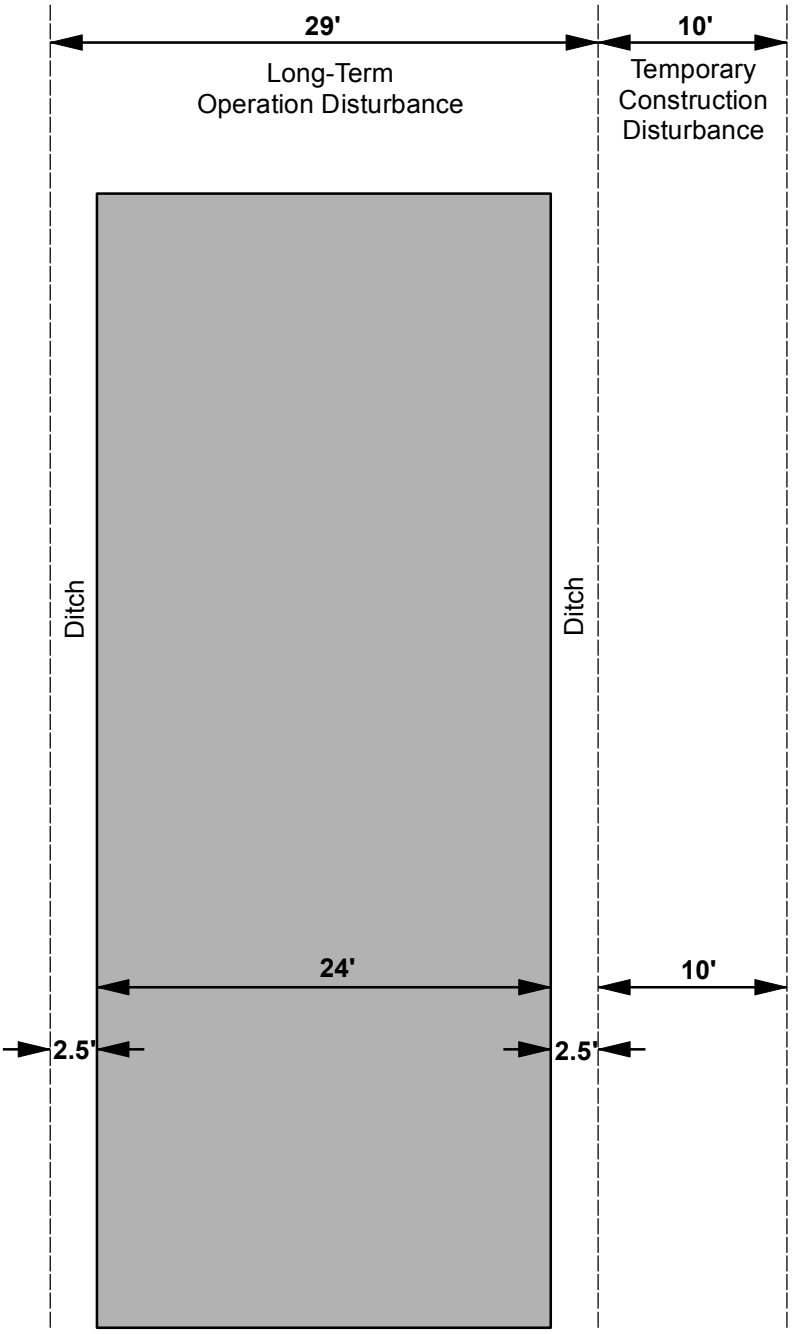
Appendix H

Typical Drawings

Exhibit D

Typical Drawings



Project

Marys River Exploration Project

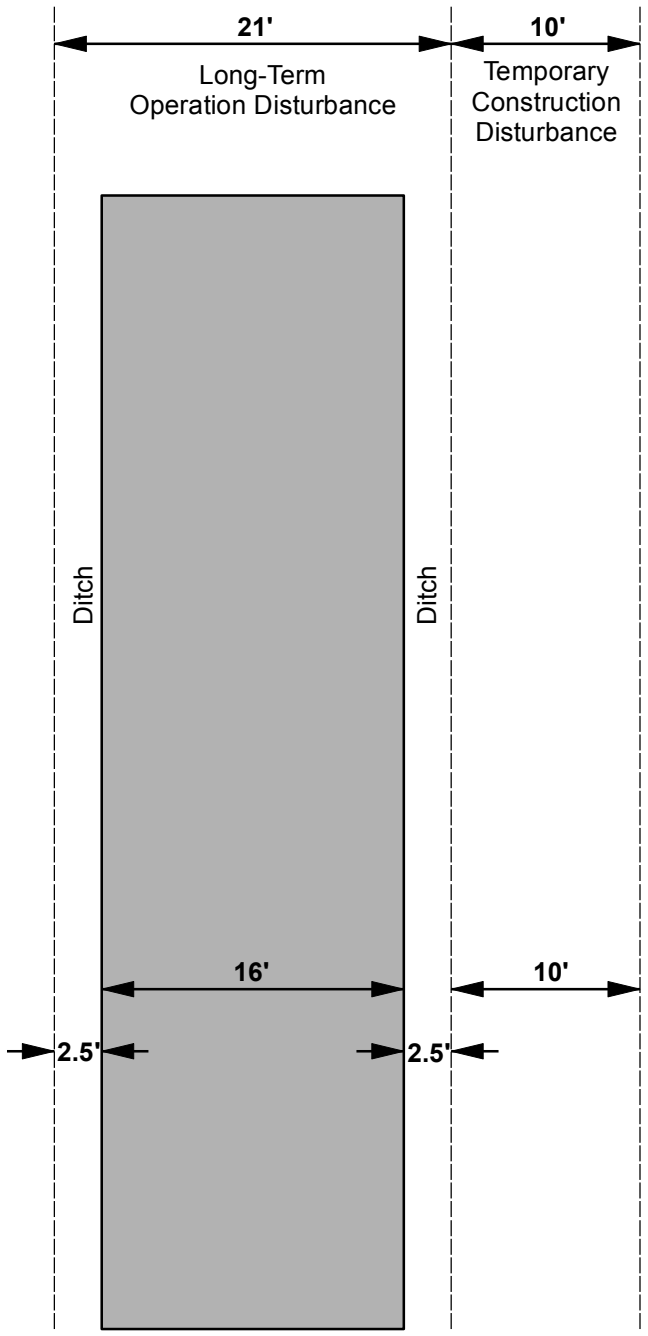
Title

Local/Collector Road
Disturbance Footprint

noble energy

Project No. 012-04			File No.
GIS:	JST	10/07/2013	Scale: NONE Rev 0
Check:	MAB	10/07/2013	Figure 1
Review:	MAB	10/07/2013	

Path: M:\NobleMarys_River\Exploration\ArcMap\Typicals.mxd



Project

Marys River Exploration Project

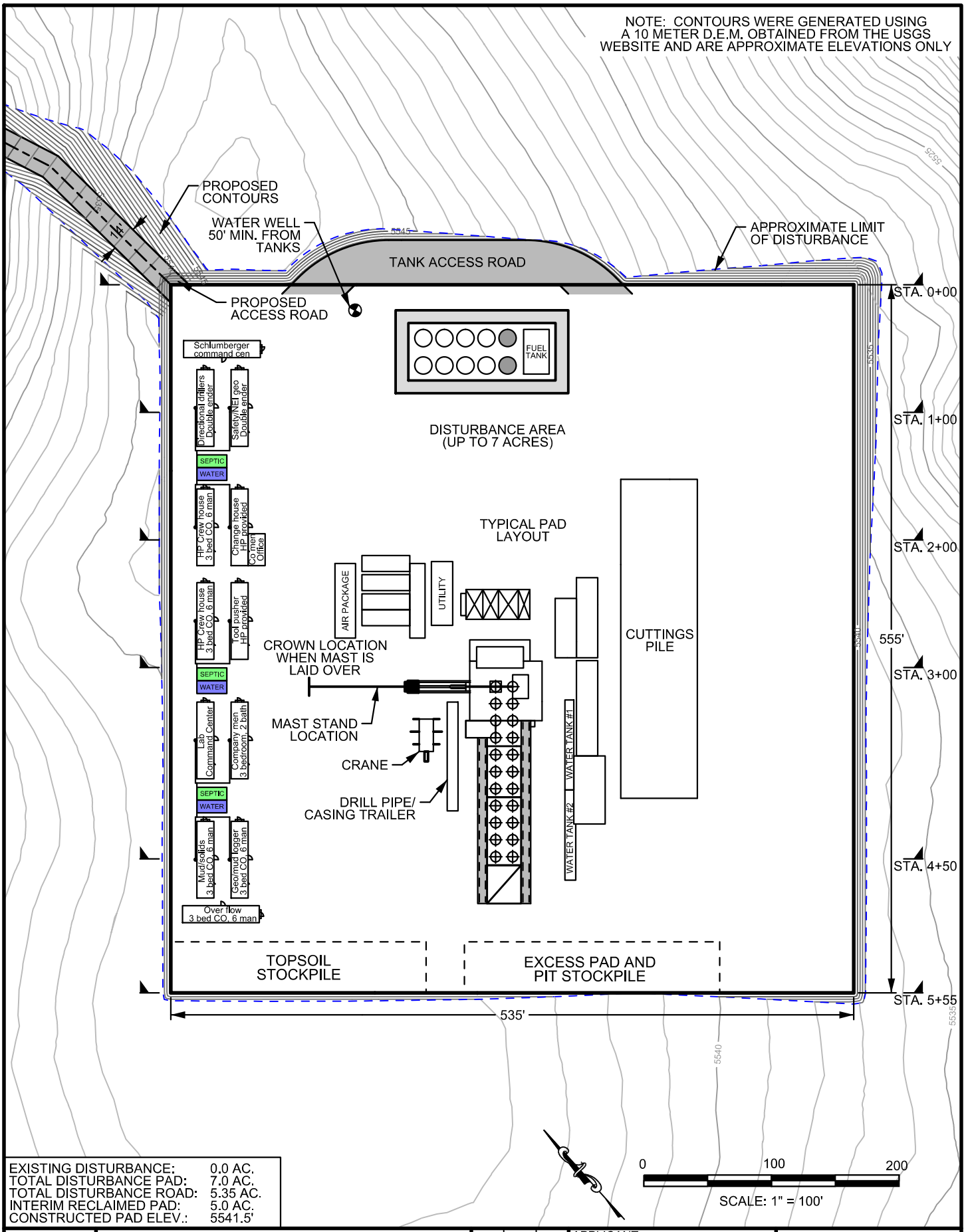
Title

Resource Road
Disturbance Footprint

noble energy

Project No. 012-04			File No.
GIS:	JST	10/07/2013	Scale: NONE Rev 0
Check:	MAB	10/07/2013	Figure 2
Review:	MAB	10/07/2013	

Path: M:\NobleMarys_River\Exploration\ArcMap\Typicals.mxd



EXISTING DISTURBANCE:	0.0 AC.
TOTAL DISTURBANCE PAD:	7.0 AC.
TOTAL DISTURBANCE ROAD:	5.35 AC.
INTERIM RECLAIMED PAD:	5.0 AC.
CONSTRUCTED PAD ELEV.:	5541.5'

Figure 3

MARYS RIVER EXPLORATION PROJECT SURFACE USE PLAN

TYPICAL WELL SITE LAYOUT PAD LOCATION - SEVEN ACRES

DSGN	DATE	CKD
DSD	06/12	STH
REV	DATE	CKD
DDP	03/13	STH
DDP	12/20/13	STH

JOB # 2012-084

APPLICANT:
noble energy
1625 BROADWAY, SUITE 2200
DENVER, CO 80202
(303) 228-4000

WWC ENGINEERING
1275 MAPLE STREET, SUITE F
HELENA, MT 59601
(406) 443-3962

PEN TABLE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\PDF\EA PLAT PACKAGE\COLOR_EA_PACKAGE.tbl
12/20/2013 FILE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\DGN\EA PLAT PACKAGE\MR FIELD EXHIBIT'S EA PACKAGE 11N-NAD83.dgn

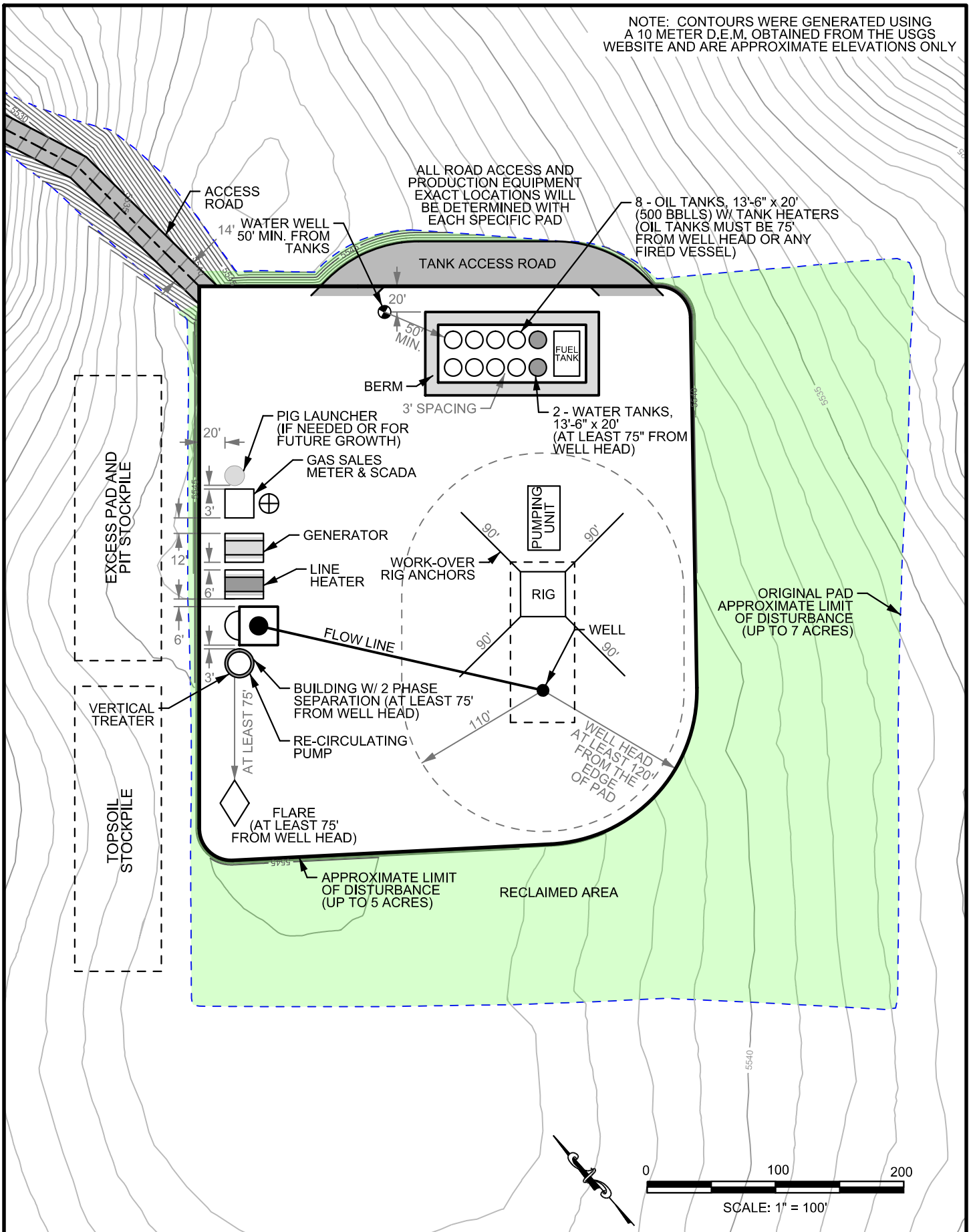


Figure 4

MARYS RIVER
EXPLORATION PROJECT
SURFACE USE PLAN

LOCATION OF PRODUCTION FACILITIES
SEVEN ACRES

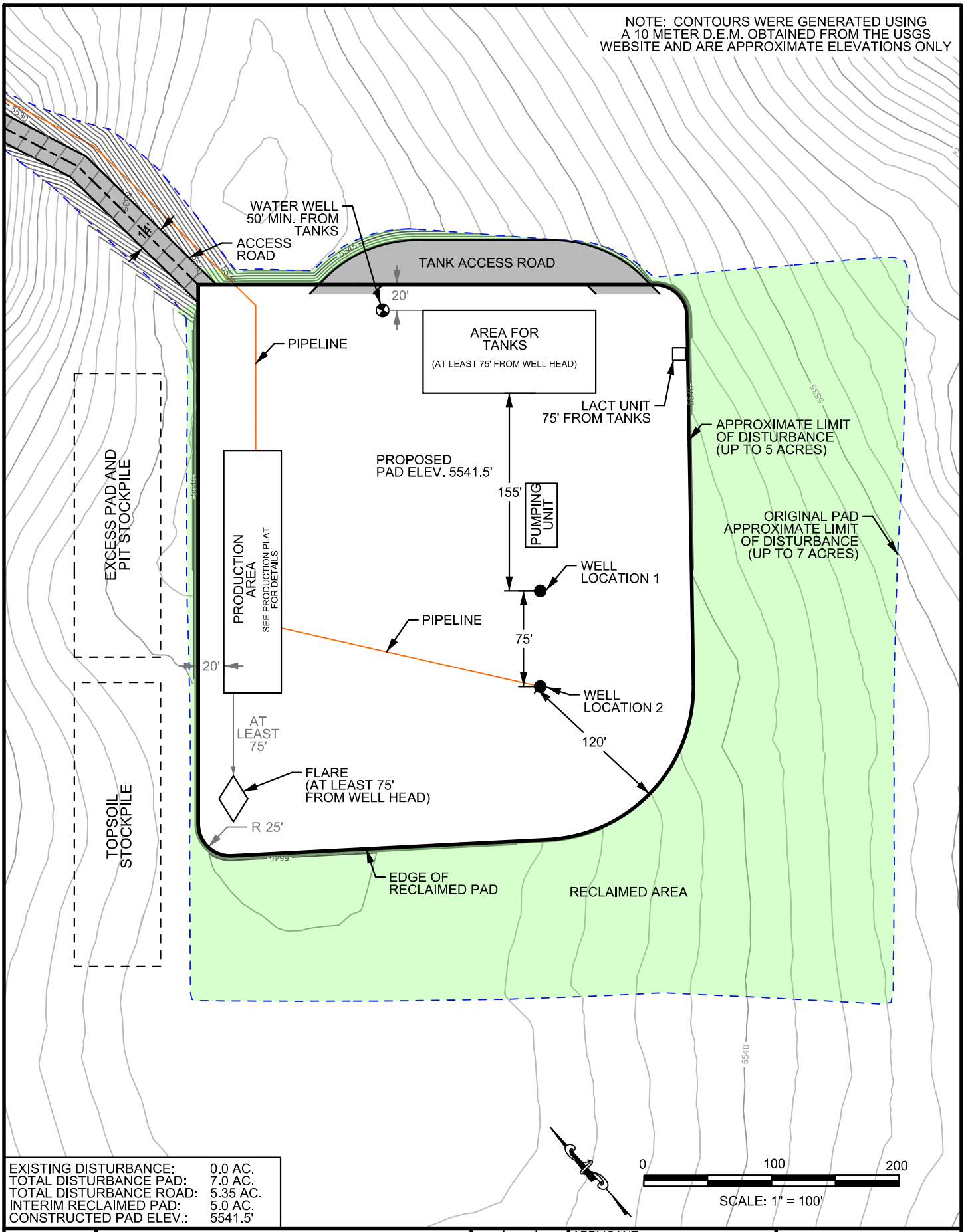
DSGN	DATE	CKD
DSD	06/12	STH
REV	DATE	CKD
DDP	03/13	STH

JOB # 2012-084

APPLICANT:
noble energy
1625 BROADWAY, SUITE 2200
DENVER, CO 80202
(303) 228-4000

WWC ENGINEERING
1275 MAPLE STREET, SUITE F
HELENA, MT 59601
(406) 443-3962

PEN TABLE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\PDF\EA PLAT PACKAGE\COLOR_EA_PACKAGE.tbl
3/20/2013 FILE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\DGN\EA PLAT PACKAGE\MR FIELD EXHIBITS EA PACKAGE 11N-NAD83.dgn



EXISTING DISTURBANCE:	0.0 AC.
TOTAL DISTURBANCE PAD:	7.0 AC.
TOTAL DISTURBANCE ROAD:	5.35 AC.
INTERIM RECLAIMED PAD:	5.0 AC.
CONSTRUCTED PAD ELEV.:	5541.5'

Figure 5

MARYS RIVER EXPLORATION PROJECT SURFACE USE PLAN

PLANS FOR RECLAMATION OF THE SURFACE - SEVEN ACRES

DSGN	DATE	CKD
DSD	06/12	STH
REV	DATE	CKD
DDP	03/13	STH

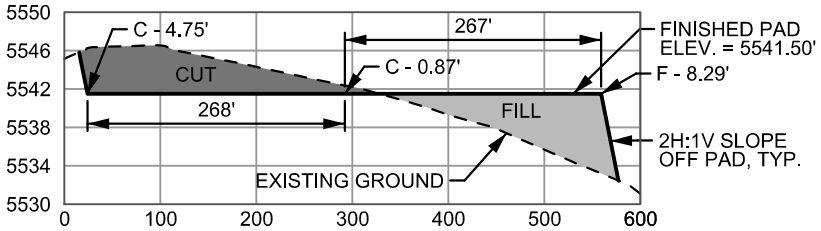
JOB # 2012-084

APPLICANT:
noble energy
1625 BROADWAY, SUITE 2200
DENVER, CO 80202
(303) 228-4000

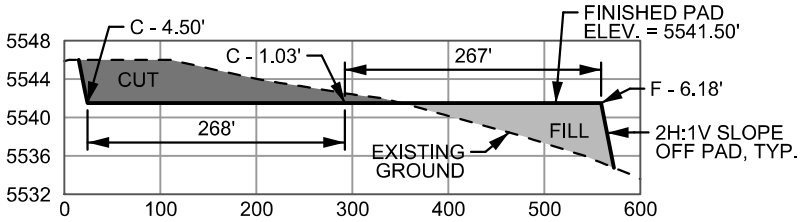
WWC ENGINEERING
1275 MAPLE STREET, SUITE F
HELENA, MT 59601
(406) 443-3962

PEN TABLE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\PDF\EA PLAT PACKAGE\COLOR_EA_PACKAGE.tbl
3/20/2013 FILE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\DGN\EA PLAT PACKAGE\MR FIELD EXHIBIT'S EA PACKAGE 11N-NAD83.dgn

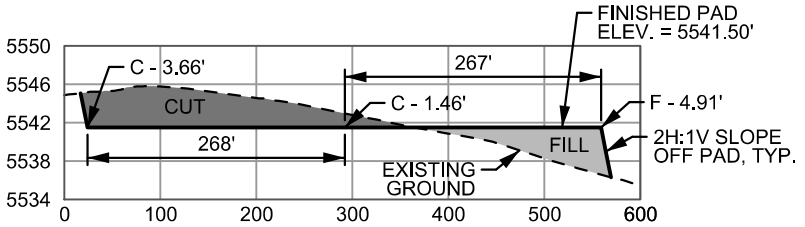
TYPICAL CROSS SECTIONS



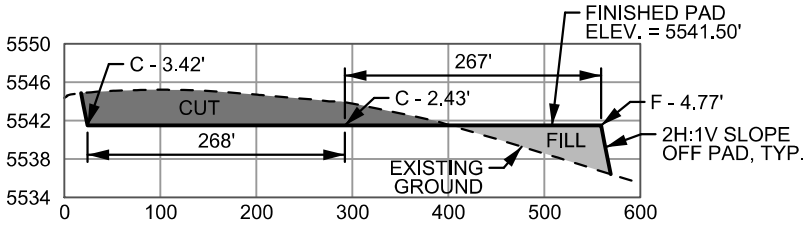
STA. 1+00



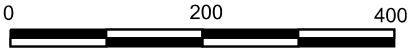
STA. 2+00



STA. 3+00



STA. 4+50



SCALE: 1" = 200'

APPROXIMATE YARDAGES			
6" TOPSOIL STRIPPING	=	5,994	CY
TOTAL CUT (EXCLUDING 6" TOPSOIL STRIPPING)	=	15,315	CY
TOTAL FILL (INCLUDING 5% FOR COMPACTION)	=	14,215	CY
BALANCE (EXCLUDING 6" TOPSOIL STRIPPING)	=	1,100	CY

APPROXIMATE ACREAGES		
WELL SITE DISTURBANCE	=+/- 7.0	ACRES
ACCESS ROAD DISTURBANCE	=+/- 5.35	ACRES
TOTAL	=+/- 12.35	ACRES

Figure 6

MARYS RIVER
EXPLORATION PROJECT
SURFACE USE PLAN

WELLSITE LAYOUT PROPOSED PAD
CROSS SECTIONS - SEVEN ACRES

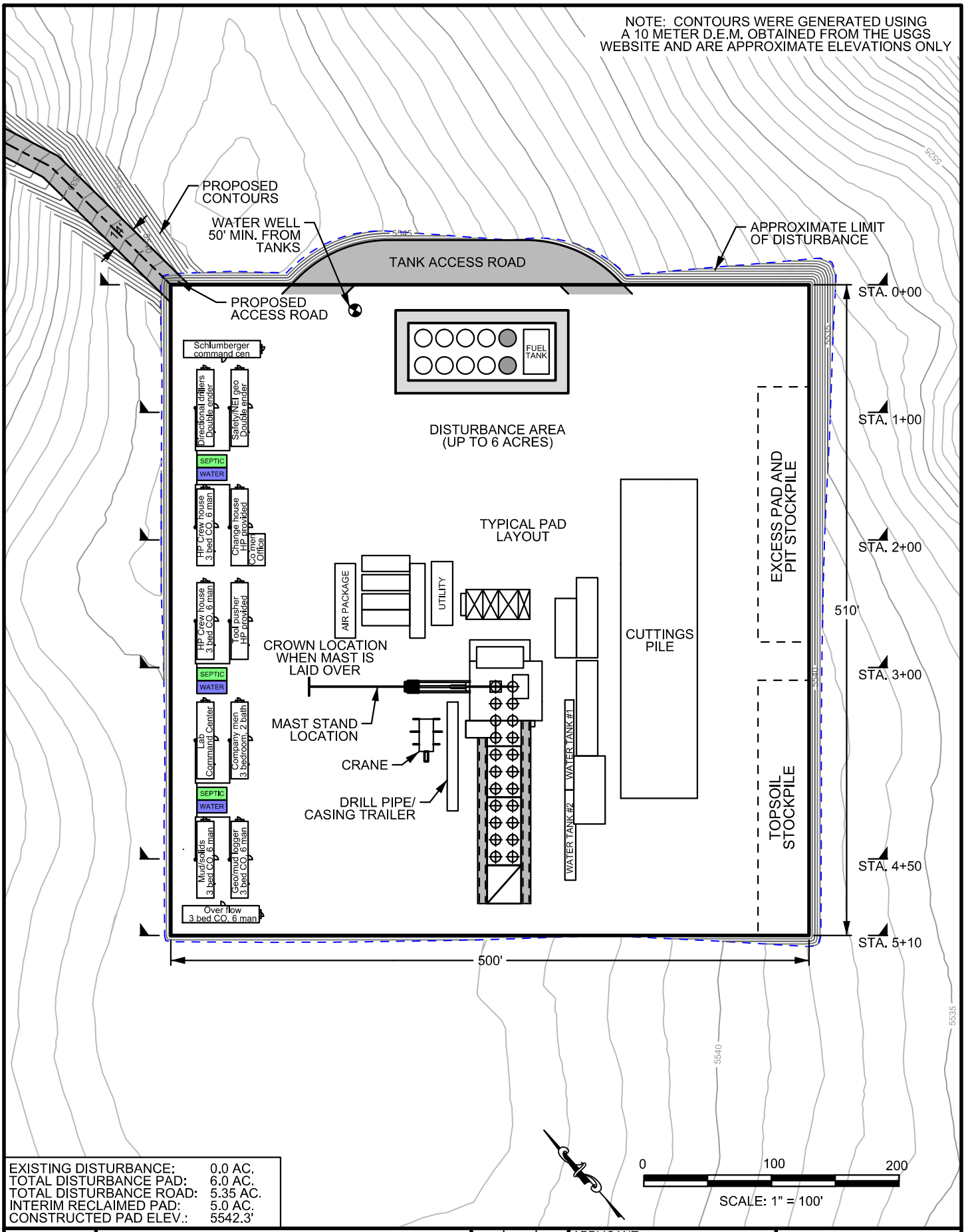
DSGN	DATE	CKD
DSD	06/12	STH
REV	DATE	CKD
DDP	03/13	STH

JOB # 2012-084

APPLICANT:
noble energy
1625 BROADWAY, SUITE 2200
DENVER, CO 80202
(303) 228-4000

WWC ENGINEERING
1275 MAPLE STREET, SUITE F
HELENA, MT 59601
(406) 443-3962

PEN TABLE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\PDF\EA PLAT PACKAGE\COLOR_EA_PACKAGE.tbl
3/20/2013 FILE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\DGN\EA PLAT PACKAGE\MR FIELD EXHIBITS EA PACKAGE 11N-NAD83.dgn



EXISTING DISTURBANCE:	0.0 AC.
TOTAL DISTURBANCE PAD:	6.0 AC.
TOTAL DISTURBANCE ROAD:	5.35 AC.
INTERIM RECLAIMED PAD:	5.0 AC.
CONSTRUCTED PAD ELEV.:	5542.3'

Figure 7

MARYS RIVER EXPLORATION PROJECT SURFACE USE PLAN

TYPICAL WELL SITE LAYOUT PAD LOCATION - SIX ACRES

DSGN	DATE	CKD
DSD	06/12	STH
REV	DATE	CKD
DDP	03/13	STH
DDP	12/20/13	STH

JOB # 2012-084

APPLICANT:
noble energy
1625 BROADWAY, SUITE 2200
DENVER, CO 80202
(303) 228-4000

WWC ENGINEERING
1275 MAPLE STREET, SUITE F
HELENA, MT 59601
(406) 443-3962

PEN TABLE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\PDF\EA PLAT PACKAGE\COLOR_EA_PACKAGE.tbl
12/20/2013 FILE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\DGN\EA PLAT PACKAGE\MR FIELD EXHIBITS EA PACKAGE 11N-NAD83.dgn

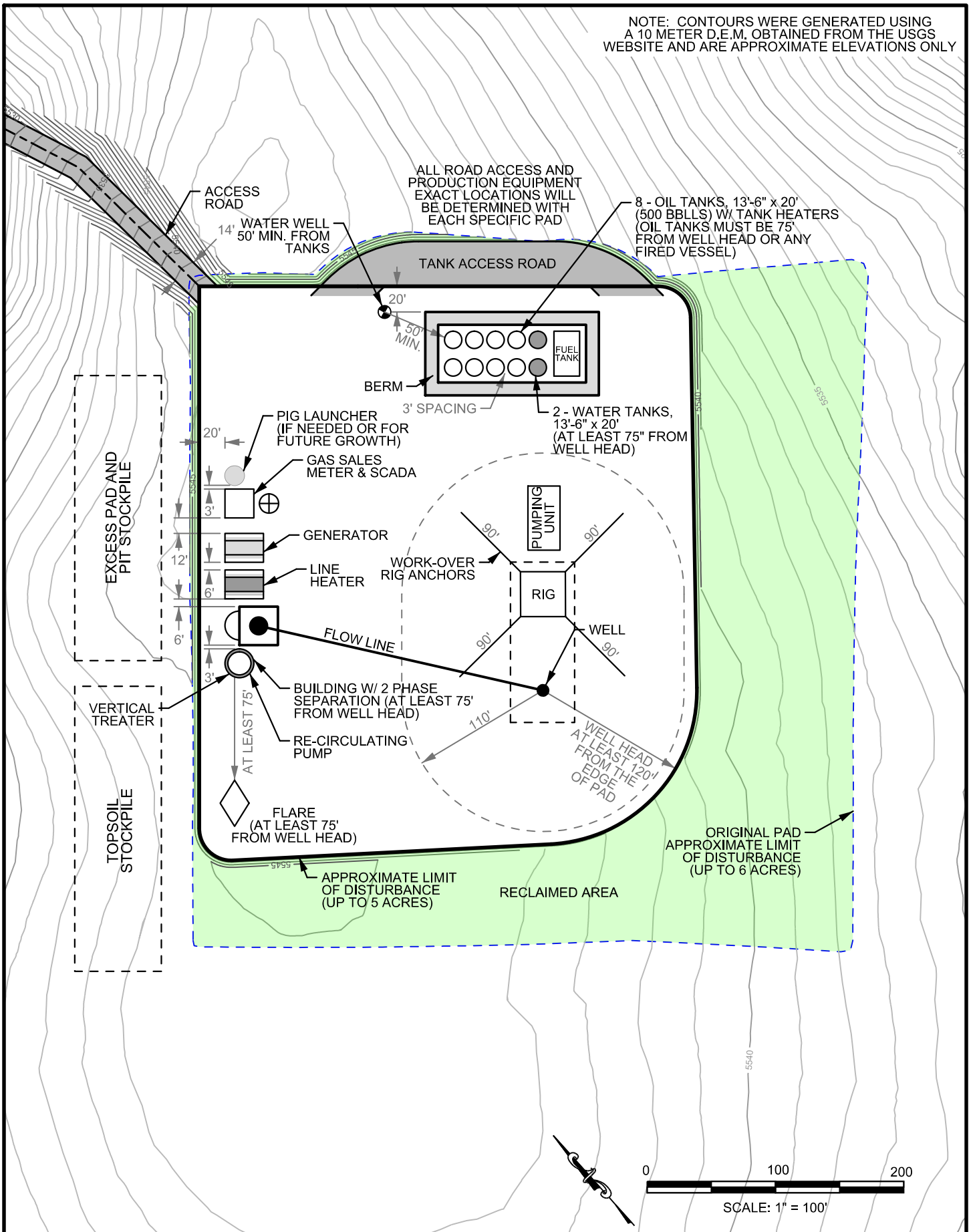


Figure 8

MARYS RIVER
EXPLORATION PROJECT
SURFACE USE PLAN
LOCATION OF PRODUCTION FACILITIES
SIX ACRES

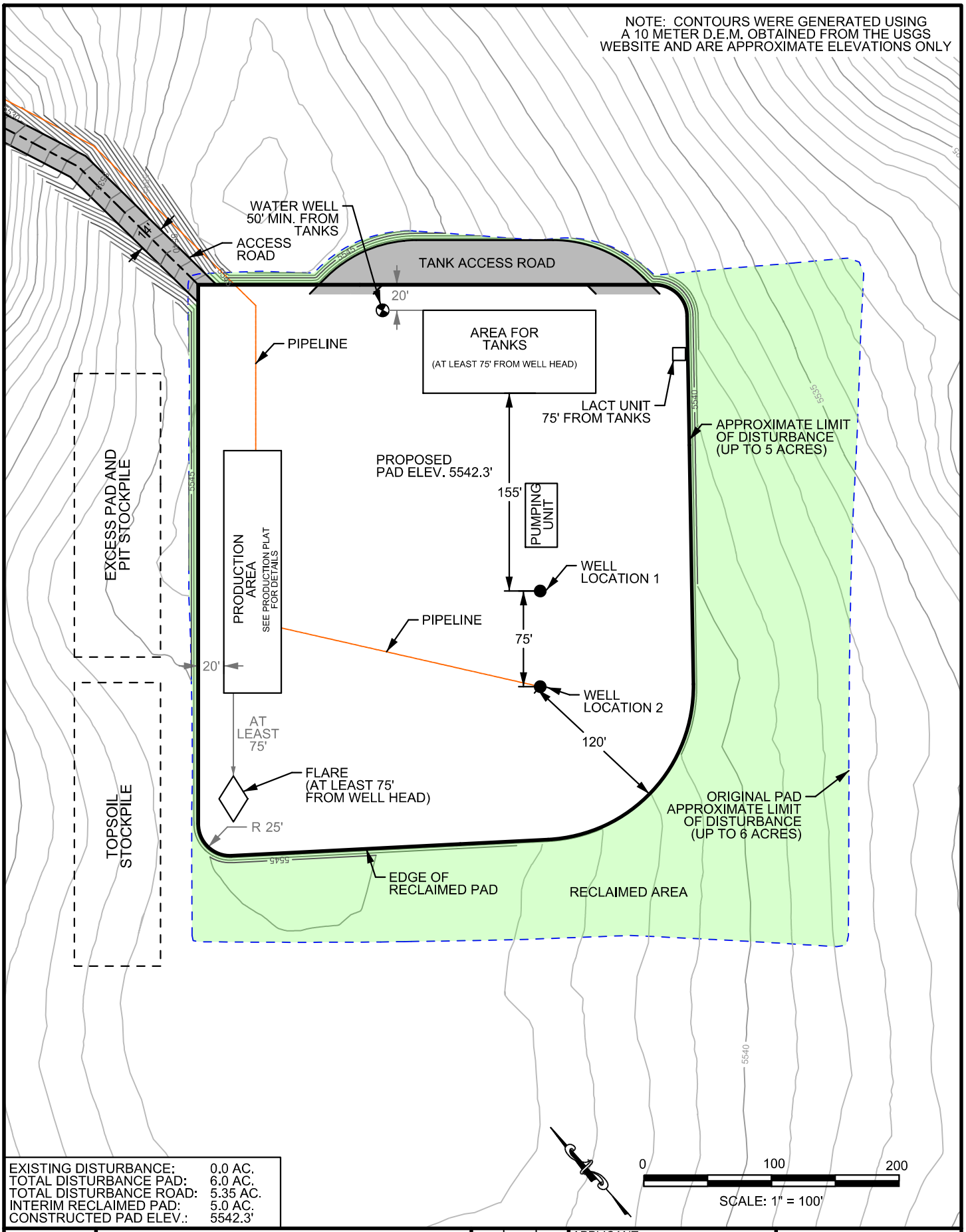
DSGN	DATE	CKD
DSD	06/12	STH
REV	DATE	CKD
DDP	03/13	STH

JOB # 2012-084

APPLICANT:
noble energy
1625 BROADWAY, SUITE 2200
DENVER, CO 80202
(303) 228-4000

WWC ENGINEERING
1275 MAPLE STREET, SUITE F
HELENA, MT 59601
(406) 443-3962

PEN TABLE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\PDF\EA PLAT PACKAGE\COLOR_EA_PACKAGE.tbl
3/20/2013 FILE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\DGN\EA PLAT PACKAGE\MR FIELD EXHIBITS EA PACKAGE 11N-NAD83.dgn



EXISTING DISTURBANCE:	0.0 AC.
TOTAL DISTURBANCE PAD:	6.0 AC.
TOTAL DISTURBANCE ROAD:	5.35 AC.
INTERIM RECLAIMED PAD:	5.0 AC.
CONSTRUCTED PAD ELEV.:	5542.3'

Figure 9

MARYS RIVER
EXPLORATION PROJECT
SURFACE USE PLAN

PLANS FOR RECLAMATION
OF THE SURFACE - SIX ACRES

DSGN	DATE	CKD
DSD	06/12	STH
REV	DATE	CKD
DDP	03/13	STH

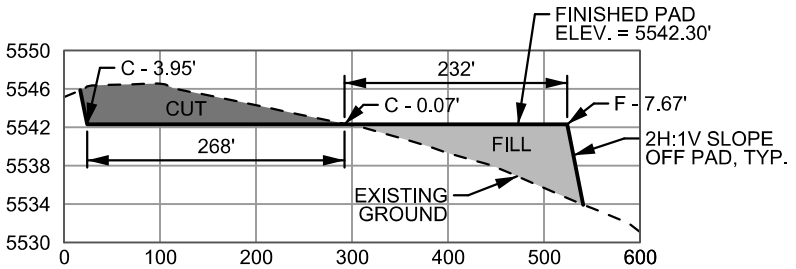
JOB # 2012-084

APPLICANT:
noble energy
1625 BROADWAY, SUITE 2200
DENVER, CO 80202
(303) 228-4000

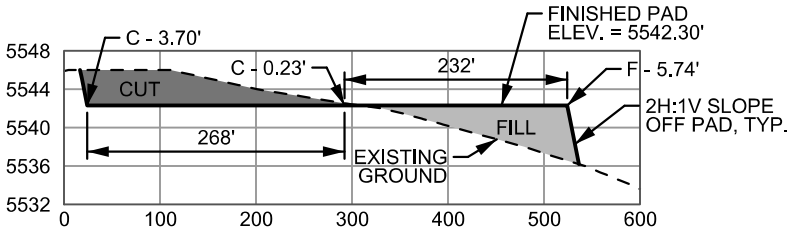
WWC ENGINEERING
1275 MAPLE STREET, SUITE F
HELENA, MT 59601
(406) 443-3962

PEN TABLE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\PDF\EA PLAT PACKAGE\COLOR_EA_PACKAGE.tbl
3/20/2013 FILE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\DGN\EA PLAT PACKAGE\MR FIELD EXHIBIT'S EA PACKAGE 11N-NAD83.dgn

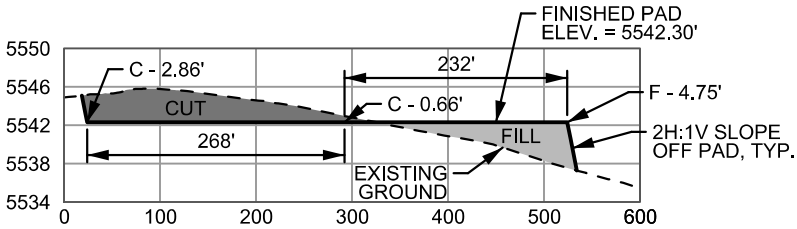
TYPICAL CROSS SECTIONS



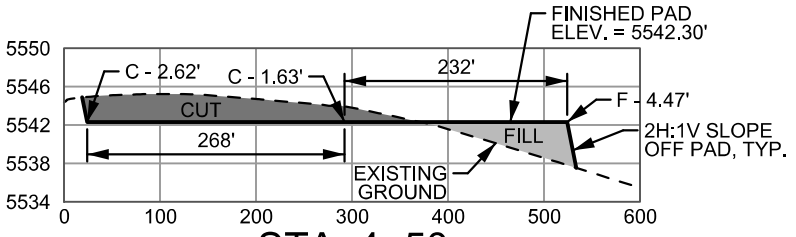
STA. 1+00



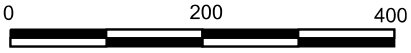
STA. 2+00



STA. 3+00



STA. 4+50



SCALE: 1" = 200'

APPROXIMATE YARDAGES			
6" TOPSOIL STRIPPING	=	5,152	CY
TOTAL CUT (EXCLUDING 6" TOPSOIL STRIPPING)	=	10,873	CY
TOTAL FILL (INCLUDING 5% FOR COMPACTION)	=	10,683	CY
BALANCE (EXCLUDING 6" TOPSOIL STRIPPING)	=	190	CY

APPROXIMATE ACREAGES		
WELL SITE DISTURBANCE	=+/- 6.0	ACRES
ACCESS ROAD DISTURBANCE	=+/- 5.35	ACRES
TOTAL	=+/- 11.35	ACRES

Figure 10

MARYS RIVER
EXPLORATION PROJECT
SURFACE USE PLAN

WELLSITE LAYOUT PROPOSED PAD
CROSS SECTIONS - SIX ACRES

DSGN	DATE	CKD
DSD	06/12	STH
REV	DATE	CKD
DDP	03/13	STH

JOB # 2012-084

APPLICANT:
noble energy
1625 BROADWAY, SUITE 2200
DENVER, CO 80202
(303) 228-4000

WWC ENGINEERING
1275 MAPLE STREET, SUITE F
HELENA, MT 59601
(406) 443-3962

PEN TABLE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\PDF\EA PLAT PACKAGE\COLOR_EA_PACKAGE.tbl
3/20/2013 FILE PATH: K:\NOBLE\12084\T11 EXAMPLE PLAT\DGN\EA PLAT PACKAGE\MR FIELD EXHIBITS EA PACKAGE 11N-NAD83.dgn

Figure 11

Well Schematic/Drilling Sequence

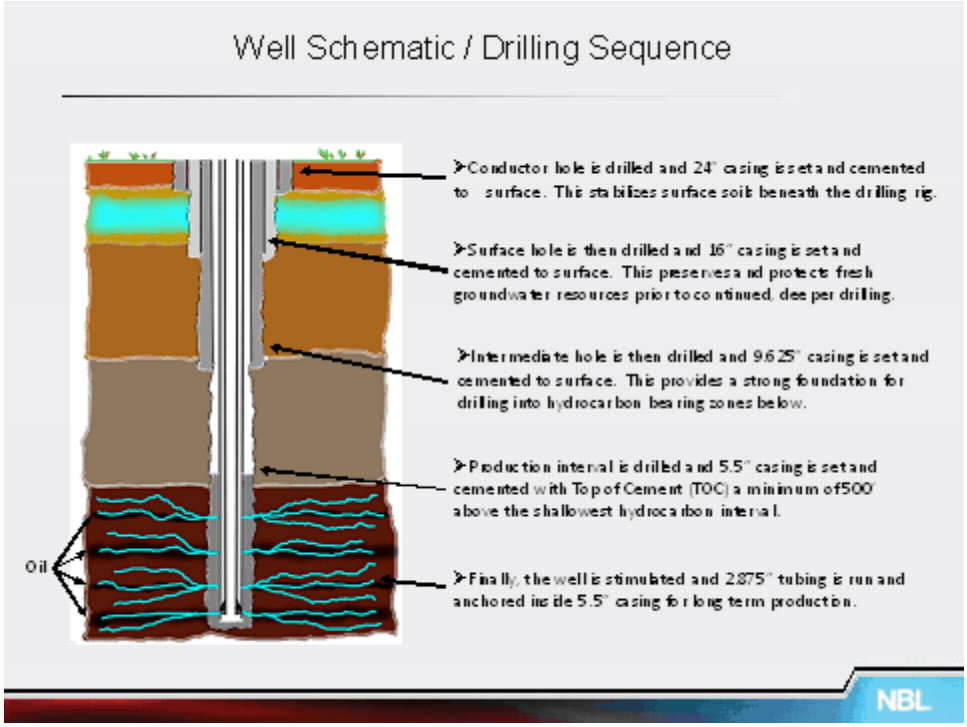
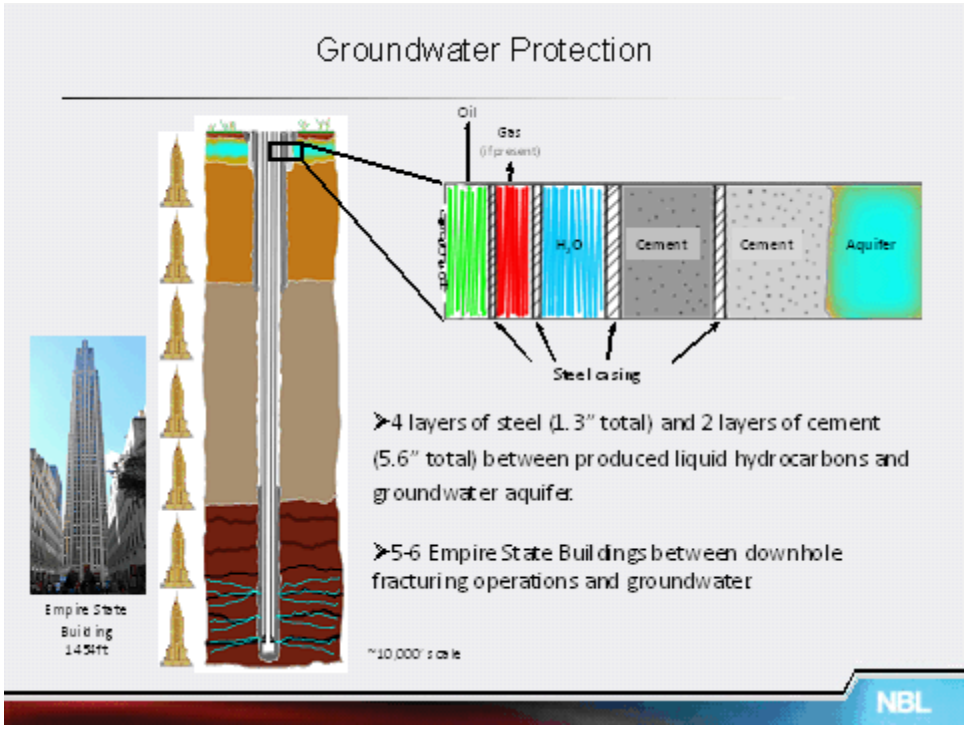


Figure 12

Groundwater Protection

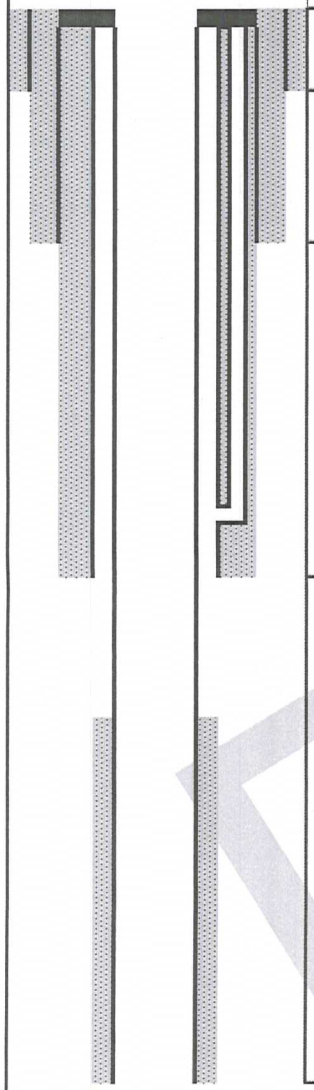


noble energy

Draft - DRILLING WELL PLAN

Initial Appraisal Well(s)
Elko Shale Vertical
Elko County, NV

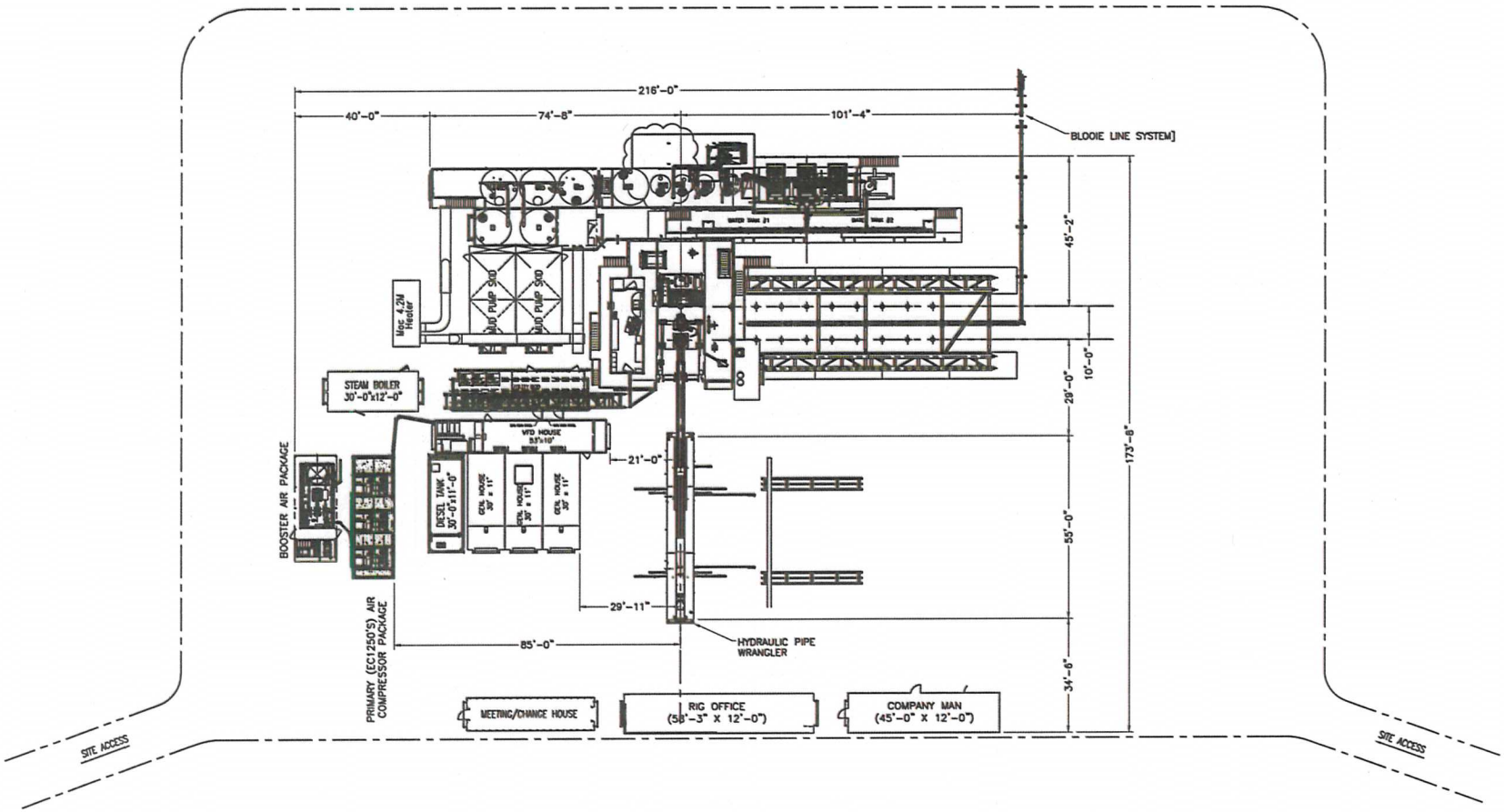
Figure 13



HOLE	CASING	GEOLOGY	Top	BOPE	MUD	CEMENT	LOGS	COMMENTS
28"	24"			n/a	Water	To surface	n/a	Stabilize surface fill/soil
	@ 80'	Conductor	80					
22"	16"			Rotating Head / Riser (Diverter)	Gel/Caustic Spud Mud	To surface Consider stab-in FC / cementing thru DP	n/a	Closed loop mud system Shoe > 500' from GL Do not shut in hot water flows Divert to tanks, kill with cold water
	@ 600'	Surf. Casing	600					
14.75"	9-5/8" w/ PAS	Valley Fill	Surface	Minimum: Rotating Head 16" 2M Annular	Water Based Mud	To surface excess based on caliper	Mudlogger from Surface casing shoe - 30' samples TD based on >80' of continuous shale Wireline logs at TD Temp survey	Closed loop mud system May be drilled with RC or conventional rig consider air package / aerated mud drilling if conventional. Install PAS for aeration while drilling production interval DV tool on location 2stage contingency pre-planned
		Humboldt	0-2000					
	@ 3000' - 4000'	Int. Casing	3000-4000					
8.75"	5-1/2"			Rotating Head 11" 5M Annular Blind rams Pipe rams Mudcross	Water Based Mud	Low density slurry using beads or foam excess based on caliper	FIT immediately following drillout Mudlogger <= 30' samples Wireline logs at TD Temp survey Sidewall cores	Closed loop mud system Cuttings disposal pit on location Air package on standby for PAS operation if needed Baby buster rigged up if aerating to maintain gas sampling integrity Directional tools on location from drillout, expect strong deviation tendency by 5000' TD based on 150' of Paleozoics
		Indian Well	4000-6000					
		Elko	8000-11000					
		Paleozoics	8550-13500					
	@ 8700' - 13700'	TD	8700-13700					

DRAFT

Figure 14



ISSUED FOR FABRICATION
March-26-2009
DRAFTSMAN
ENGINEER

REV	DATE	DESCRIPTION	BY
D	18 Mar 09	removed second mud cleaner	BJCook
C	3-11-09	Relocated Boiler and Adjusted Plug Points to Drawn Dwg 127282F002	CAM
B	3-06-09	ADJUSTED VFD POSITION AND REVISED AIR PKG ARRANGEMENT	CAM
A	03-03-09	ISSUED FOR FABRICATION; ADD SHEETS 2 & 3	MWL

ENGINEERING APPROVAL | DATE

HELMERICH & PAYNE INTERNATIONAL DRILLING CO.

TITLE: RIG SITE LAYOUT PLAN VIEW, WINTERIZED F4SA

CUSTOMER: NOBLE

PROJECT: F4SA RIG 343

DRAWN: BJCook | DATE: 24 Nov 08 | DWG. NO.: NO-D0001 | REV: D

SCALE: 1/16" = 1' | SHEET: 1 OF 3

PROPRIETARY

THIS DRAWING AND THE IDEAS AND INFORMATION INCLUDED IN THIS DRAWING ARE PROPRIETARY AND ARE NOT TO BE REPRODUCED, DISTRIBUTED OR DISCLOSED IN ANY MANNER, WITHOUT THE PRIOR, WRITTEN CONSENT OF A DULY AUTHORIZED OFFICER OF HELMERICH & PAYNE INT'L DRILLING CO.

Figure 15

LEGEND

- KNIFE GATE VALVE (AIR)
- KNIFE GATE VALVE (MANUAL)
- EXPANSION JOINT
- REDUCER
- DIRECTION OF FLOW
- BUTTERFLY VALVE
- HAMMER UNION
- HAMMER SEAL
- GATE
- BLIND FLANGE
- HOSE
- TYPE 'D' FEMALE CAM & GROOVE COUPLING
- DE-AERATOR

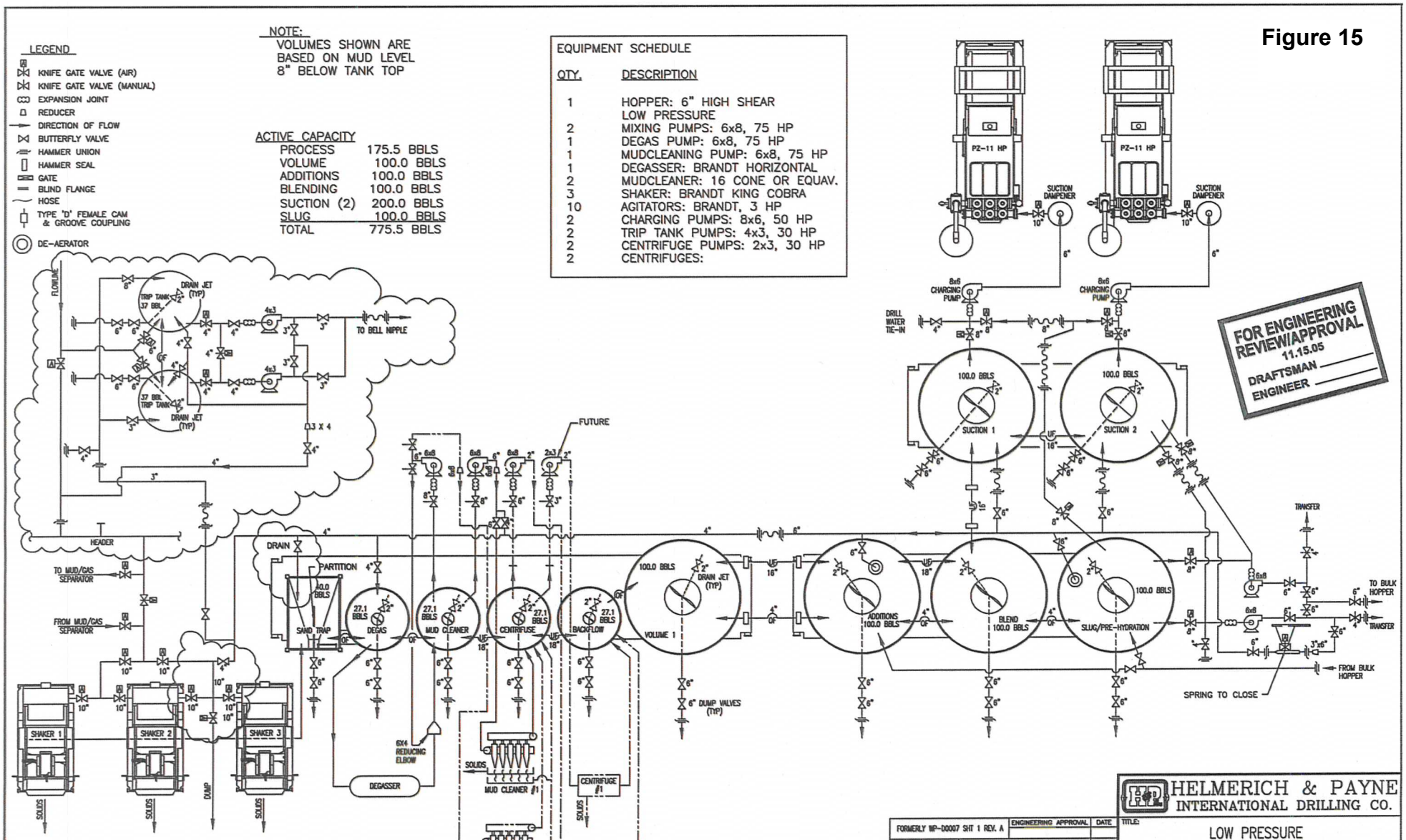
NOTE:
VOLUMES SHOWN ARE BASED ON MUD LEVEL 8" BELOW TANK TOP

ACTIVE CAPACITY

PROCESS	175.5 BBLS
VOLUME	100.0 BBLS
ADDITIONS	100.0 BBLS
BLENDING	100.0 BBLS
SUCTION (2)	200.0 BBLS
SLUG	100.0 BBLS
TOTAL	775.5 BBLS

EQUIPMENT SCHEDULE

QTY.	DESCRIPTION
1	HOPPER: 6" HIGH SHEAR LOW PRESSURE
2	MIXING PUMPS: 6x8, 75 HP
1	DEGAS PUMP: 6x8, 75 HP
1	MUDCLEANING PUMP: 6x8, 75 HP
1	DEGASSER: BRANDT HORIZONTAL
2	MUDCLEANER: 16 CONE OR EQUAV.
3	SHAKER: BRANDT KING COBRA
10	AGITATORS: BRANDT, 3 HP
2	CHARGING PUMPS: 8x6, 50 HP
2	TRIP TANK PUMPS: 4x3, 30 HP
2	CENTRIFUGE PUMPS: 2x3, 30 HP
2	CENTRIFUGES:



PROPRIETARY

THIS DRAWING AND THE IDEAS AND INFORMATION INCLUDED IN THIS DRAWING ARE PROPRIETARY AND ARE NOT TO BE REPRODUCED, DISTRIBUTED OR DISCLOSED IN ANY MANNER, WITHOUT THE PRIOR, WRITTEN CONSENT OF A DULY AUTHORIZED OFFICER OF HELMERICH & PAYNE INT'L DRILLING CO.

REV	DATE	DESCRIPTION	BY
		FORMERLY MP-D0007 SHT 1 REV. A — ENGINEERING APPROVAL — DATE	
C	11.15.05	REVISED SCHEMATIC PER ENG REQUEST	BDB
B	07-14-05	REVISED SCHEMATIC	MWL
A	06-15-05	ADDED SAND TRAP & SHAKER BYPASS	MWL

HELMERICH & PAYNE INTERNATIONAL DRILLING CO.

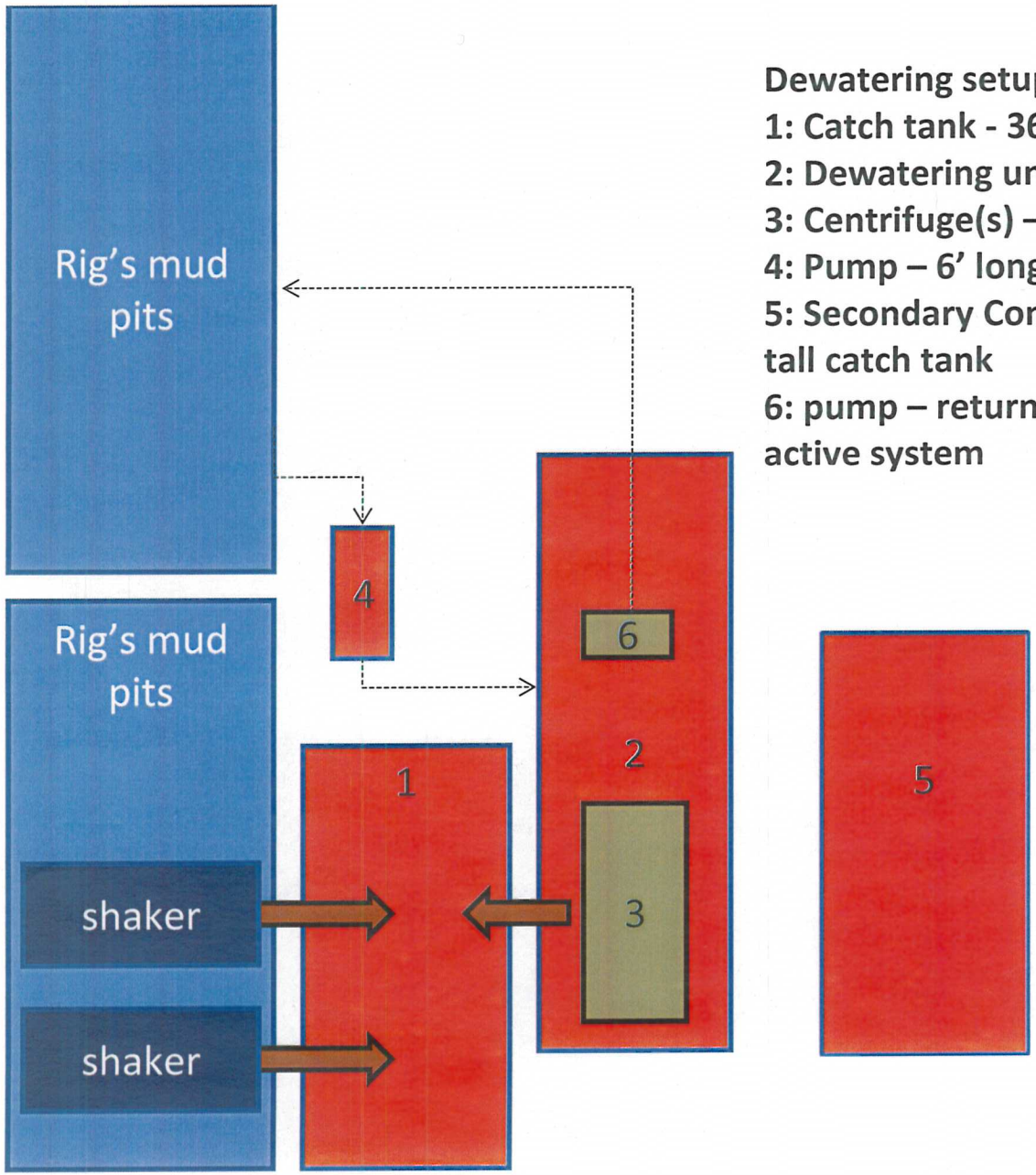
TITLE: LOW PRESSURE MUD SYSTEM SCHEMATIC

CUSTOMER: WILLIAMS PRODUCTION RMT COMPANY

PROJECT: PARACHUTE COLORADO

DRAWN: MWL	DATE: 1/27/05	DWG. NO.: F4S-H-300	REV: C
SCALE: N/A	SHEET: 1 OF 1		

Figure 16



Dewatering setup:
1: Catch tank - 36' long x 11' wide x 5' tall
2: Dewatering unit – 48' long x 8' wide
3: Centrifuge(s) – mounted to dewatering unit
4: Pump – 6' long x 2' wide (feeds dewater. unit)
5: Secondary Containment 36' long x 11' wide x 8' tall catch tank
6: pump – returns processed fluid to the rig's active system